DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

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MEMORANDUM

Date: November 2, 1999

From: Senior Regional Representative
ATSDR Region III

Subject: Health Consultation
Gulf Oil Sinking Springs

To: Drew Lausch
EPA Site Assessment Manager (3HS33)

Attached is a copy of the health consultation for Gulf Oil Sinking Springs (a/k/a Carlos R. Leffler Terminal) Sinking Springs Township, Berks County, Pennsylvania, dated September 29, 1999. At the request of the U.S. Environmental Protection Agency (EPA) Region III, the Pennsylvania Department of Health prepared this Health Consultation (HC), under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), to evaluate if contaminated groundwater and surface water related to the site pose any threat to the public health through drinking contaminated groundwater or consuming possibly-contaminated fish.

The primary intent of this health consultation is to inform you of the actions ATSDR has recommended in order to prevent or mitigate exposures to the contaminants of concern at the site. Upon your review, please inform us if you discover significant errors or omissions in the document which could change its conclusions and recommendations. I can be reached at telephone number (215) 814-3139 or for written responses at the address listed below.

Charles J. Walters, Jr.
ATSDR
c/o US EPA Region III
Hazardous Site Cleanup
Division (3HS00)
1650 Arch Street
Philadelphia, Pa 19103

Attachment
cc: Max M. Howie, Jr., ATSDR/DHAC/PERIS
Kandiah Sivarajah, PADOH w/attachment
James Flesher, PADEP, Southcentral Region w/attachment
Gary Schultz, PADOH, Southeastern District w/attachment

REC'D 11/4/99
- DREW LAUSCH, EPA-R3

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Health Consultation

GULF OIL SINKING SPRINGS
(a/k/a CARLOS R. LEFFLER TERMINAL)

SINKING SPRINGS TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

CERCLIS NO. PAD010556603

SEPTEMBER 29, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

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Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

GULF OIL SINKING SPRINGS
(a/k/a CARLOS R. LEFFLER TERMINAL)

SINKING SPRINGS TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

CERCLIS NO. PAD010556603

Prepared by:

Pennsylvania Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY

The Gulf Oil Sinking Spring site (the site) is a petroleum product terminal and storage facility on Mountain Home Road in Spring Township, Berks County, Pennsylvania, just west of the Sinking Spring Borough boundary. It is also known as the Chevron USA, Inc., or Carlos R. Leffler terminal. Spillage and disposal practices there have resulted in groundwater contamination. Cacoosing Creek, a freshwater trout fishery, passes by the site, and weathered petroleum product from a nearby seep is entering the stream. The Pennsylvania Department of Health (PADOH) concludes that the site is not a public health hazard with respect to drinking contaminated groundwater. Further, PADOH concludes that the site is not an apparent public health hazard with respect to consuming fish from Cacoosing Creek.

BACKGROUND AND STATEMENT OF ISSUES

This Health Consultation (HC) responds to a request by the United States Environmental Protection Agency (USEPA). In mid-1998, USEPA asked the Agency for Toxic Substances and Disease Registry (ATSDR) to evaluate contaminated groundwater and surface water related to the site. Specifically, USEPA is interested in any threats to public health through drinking the contaminated groundwater or consuming possibly-contaminated fish from Cacoosing Creek.

PADOH, working under cooperative agreement with ATSDR, prepared this HC. Conclusions and recommendations herein are specific to the site. PADOH provides conclusions and recommendations based on the data and information referenced. Additional data could alter the recommendations being presented. PADOH is committed to reviewing additional data and responding to additional requests.

Site Description and History

The site is at Mountain Home Road, Spring Township, Berks County, Pennsylvania, just west of the Sinking Spring Borough boundary (Appendix A, Figures 1, 2, 3). The site is about 10 acres in size and is a petroleum product terminal and storage area. It is a secure area that is surrounded by a chain link fence (1).

Gulf Oil Company (Gulf Oil) built the petroleum products distribution center in 1962. Gulf Oil owned and operated the site until 1983. On the night of December 11, 1978, Gulf Oil experienced a spill of about 42,000 gallons of gasoline at the site when a flange failed on tank No. 101 (Appendix A, Fig. 4) (1). The spill contaminated groundwater beneath the site.

After immediately notifying the appropriate authorities, Gulf Oil hired R. E. Wright Associates, Inc. (Wright) of Harrisburg, Pennsylvania, to recover lost product and monitor groundwater beneath the site. Wright excavated a series of on-site barrier trenches on December 12, 1978 to intercept the spilled product. Within one week Wright recovered about

2,200 gallons of free product from the trench system and reported that gasoline influx rates dropped nearly to zero after that period. Wright began a well installation program to monitor groundwater and possibly recover gasoline. On January 10, 1979 before the wells were completed and developed, Gulf Oil suspended Wright from the project after about 2,500 gallons of free product had been recovered (2).

PADOH and other researchers suspect that additional groundwater contamination occurred at the site due to past practices in disposing of process wastes on site. Gulf Oil routinely disposed of tank bottoms and separator sludges in on-site unlined pits (Appendix A, Fig. 4) between about 1962 and 1983. No permits were issued for the inactive lead sludge disposal area (1). The waste types and amounts disposed per year are described in Appendix B, Table 1 (3).

USEPA contracted NUS Corporation (NUS) to perform a Site Inspection (SI) and take environmental samples of the site. NUS did that work in October 1984, sampling three monitoring wells, three auger holes and surface water from upstream/downstream stations in Cacoosing Creek.

As a result of the SI, NUS found groundwater at the site to be contaminated with substances related to petroleum products (1). For reasons detailed in the *Discussion* section, PADOH will not present those data in this HC.

NUS found a maximum level of lead in downstream Cacoosing Creek surface water to be 8 micrograms per liter (μg/L). Additionally, NUS found that upstream samples of surface water and sediments in Cacoosing Creek contained higher levels of the following contaminants than in downstream samples: the plasticizer di(2-ethylhexyl) phthalate (DEHP), 46 μg/L (aqueous); and polycyclic aromatic hydrocarbons (PAHs), 1,300 micrograms per kilogram (μg/kg) (approximated in sediment) (1). The downstream aqueous sample contained some volatile organic compounds (benzene/ethylbenzene/toluene/xylene or BTEX) often related to gasoline pollution, but those data were deemed questionable by a quality control review (1). NUS concluded that the stream sampling results were insufficient to state that the site was impacting Cacoosing Creek (1).

PADOH was able to locate neither stream chemical sampling data more recent than the October 1984 event, nor any fish tissue sampling data. The NUS sample location map in Reference No. 1 did not show the exact positions of stream sampling.

Gulf Oil merged with Chevron USA, Inc., (Chevron) prior to the sale of the property to Carlos R. Leffler (Leffler) in 1984. Chevron retains the groundwater remediation responsibilities at the site (4).

Most of the people who live within a mile of the site use a public water supply, including employees at the site. About ten homes to the southwest of the site along Mountain Home

Road and across Cacoosing Creek are using private well water supplies for their domestic needs (5).

CUWC owns two wells about 1,000 feet southwest of the site. However, CUWC removed those two wells from service in the 1950s due to contamination with petroleum product (5).

In a notice of violation (NOV) letter dated March 12, 1999, the Pennsylvania Department of Environmental Protection (PADEP) notified Chevron of the requirements for a timely, comprehensive site characterization and remedial actions for scenarios such as the one at the site. PADEP also stated in the NOV that Chevron has not fulfilled those requirements and that Chevron should submit a remedial action plan to PADEP and actively pursue a selected remedial standard (6).

Site Visit

On May 27, 1999, Mark Lavin and J. E. Godfrey of PADOH's Health Assessment Program staff conducted a site visit and met with the terminal manager. He showed us various points of interest within the fenced area, including monitoring wells. Mr. Godfrey made a number of measurements of the on-site geology to help him define the most likely direction(s) of groundwater movement beneath the terminal.

We then walked offsite to the southwest along Mountain Home Road to the area near the bridge across Cacoosing Creek. Just upstream from that bridge, which is upstream from the site, we observed and smelled what appeared to be a seep of gasoline near the creek. Although the seep was not creating a noticeable sheen on the water, the terminal manager pointed out that sorbent booms have been maintained at the seep by third parties (unidentified for this HC) to control some of the weathered petroleum product that has been emerging for years at the seep and threatening Cacoosing Creek.

The reader should note at this point that, in addition to Leffler, other oil companies, including B. P. and Sun Refining, own and operate bulk petroleum product storage facilities next to or near the site. At least one of those companies is remediating groundwater contamination at this writing.

The staff toured the nearby community and observed topography, geology and geography near the site. The staff saw a number of minnows and at least one trout of about 13 inches in length in Cacoosing Creek about a half-mile downstream from the site.

The staff also met with local township officials and asked if any complaints of private well water contamination with gasoline had ever been lodged with the township. Both the township secretary and the township engineer said that no complaints had ever been registered to that effect.

DISCUSSION

To decide whether nearby residents are exposed to contaminants migrating from the site, PADOH evaluates the environmental and human components that lead to human exposure. An exposure pathway consists of five elements: (a) a source of contamination; (b) an environmental medium in which the contaminants may be present or may migrate; (c) a geographic point of human exposure; (d) a biologic route of exposure; and (e) a receptor population.

PADOH and ATSDR identify exposure pathways as completed, potential, or eliminated. In completed exposure pathways, the five elements exist, and so exposure has occurred, is occurring, or will occur. In potential exposure pathways, however, at least one of the five elements is missing, and exposure to a contaminant could have occurred in the past, could be occurring now, or could occur in the future. An exposure pathway can be eliminated if at least one of the five elements is missing and is expected to be always absent.

Pathways

Completed Exposure Pathways

PADOH is unable to identify any completed exposure pathways for the site. The following items cite reasons for this.

- There are no known private or public water supply wells withdrawing water from the zone of groundwater contamination beneath and downgradient of the site.
- There are no private or public water supplies using water from Cacoosing Creek.
- PADOH found no data to describe fish tissue quality in Cacoosing Creek that would suggest a completed pathway involving human consumption of contaminated fish.

Potential Exposure Pathways

Sediment

PAHs, not necessarily site-related, are present in sediments in Cacoosing Creek. Anyone who recreates in that creek is therefore subject to exposure to the PAHs. A brief description of PAHs is included below in the *Public Health Statement for PAHs* section.

Surface Water

SI investigators found a maximum level of 8 μg/L of lead, also not necessarily site-related, in Cacoosing Creek surface water, and it is not affecting any drinking water supplies. No surface

water intakes have been identified within 15 miles downstream of the site. If people were to swim in Cacoosing Creek near the site, they could be exposed orally to lead at very low levels, below USEPA's action level of 15 μg/L for lead in drinking water. PADOH does not believe the lead found at 8 μg/L in Cacoosing Creek to be a public health problem.

SI investigators found a maximum level of 46 μg/L of DEHP in Cacoosing Creek surface water upstream of the site. However, in the SI report investigators questioned the validity of that finding, stating that DEHP is a common laboratory contaminant and could not be confirmed in upstream sediment samples. The report also states that DEHP partitions strongly in sediments, and, therefore, it is unusual to find DEHP in the aqueous sample when it cannot be confidently identified in the sediment (1).

Fish

Although the downstream sampling during the SI suggested that surface water may be slightly contaminated with BTEX, a signal marker of gasoline pollution, quality assurance/quality control review of the data found that they were of questionable qualitative significance (1). Even if the surface waters were polluted with BTEX, those substances do not bioaccumulate in fish in amounts that are substantial enough to cause concern for public health (7).

Eliminated Exposure Pathway

Groundwater

No drinking water wells are near or downgradient of the site, so no completed groundwater exposure pathway exists. The nearest wells still in use are cross-gradient or upgradient of the site and spill area by several thousand feet. The combined yield of those domestic wells is not likely to be sufficient to capture a groundwater plume beneath the site.

Public Health Statement for PAHs

PAHs are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture, such as soot, containing two or more of those compounds. Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers. The Department of Health and Human Services has determined that some of the PAHs are known animal carcinogens. The International Agency for Research on Cancer has determined that some of the PAHs are probably carcinogenic to humans. USEPA has determined that some of the PAHs are probable human carcinogens (8).

The quantities of PAHs found in Cacoosing Creek sediments are low. PADOH does not expect that any adverse health effects would be experienced by people who might fish or swim in the creek and come in contact with the PAHs.

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CHILD HEALTH INITIATIVE

ATSDR and PADOH recognize that children are especially sensitive when exposed to many contaminants. For that reason, we base all our exposure scenarios and conclusions on the results of children's exposure to site-related contaminants.

CONCLUSIONS

The Pennsylvania Department of Health (PADOH) and the Agency for Toxic Substances and Disease Registry (ATSDR) conclude, based on the data available, that the site is not a public health hazard with respect to the groundwater contamination by gasoline and other petroleum products. Further, PADOH and ATSDR conclude that the site is not an apparent public health hazard with respect to surface water contamination near the site and potential contamination of the Cacoosing Creek fishery with gasoline and other petroleum products.

RECOMMENDATIONS

PADOH will continue to work with federal and state environmental officials and address public health issues as needed.

REFERENCES

1. NUS Corporation. Site Inspection of Gulf Oil Sinking Spring. March 17, 1986.

2. R. E. Wright Associates, Inc. Subsurface Gasoline Recovery and Monitoring Program for the Gulf Oil Corporation, Sinking Spring Terminal, Sinking Spring, Pennsylvania. February 1979.

3. Gannett Fleming, Inc. Site Inspection Prioritization of Gulf Oil Sinking Spring. March 31, 1993.

4. Pennsylvania Department of Environmental Protection. Memorandum to James Flesher from Richard Pfaehler concerning contamination at the Gulf Oil Sinking Spring terminal. August 13, 1990.

5. Personal communications with Steve Gibbs, Citizens Utility Water Company. June 1999.

6. Pennsylvania Department of Environmental Protection. Notice of Violation Letter to Erin Ireland from F. William Noll concerning groundwater contamination at the Gulf Oil Sinking Spring terminal. March 12, 1999.

7. Personal communications with Robert Schott, Pennsylvania Department of Environmental Protection. June 1999.

8. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polycyclic Aromatic Hydrocarbons (PAHs) (Update). Atlanta: ATSDR, August 1995.

PREPARER OF REPORT

Mark A. Lavin, B.S.
Environmental Health Specialist

CERTIFICATION

This Health Consultation for the Gulf Oil Sinking Spring site was prepared by the Pennsylvania Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.

Roberta Edwin

Technical Project Officer, SPS, SSAB, DHAC, ATSDR

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

Richard Gillig

Section Chief, SPS, SSAB, DHAC, ATSDR

Appendix A

FIGURES

Figure 1

Gulf Oil Sinking Spring Site Location

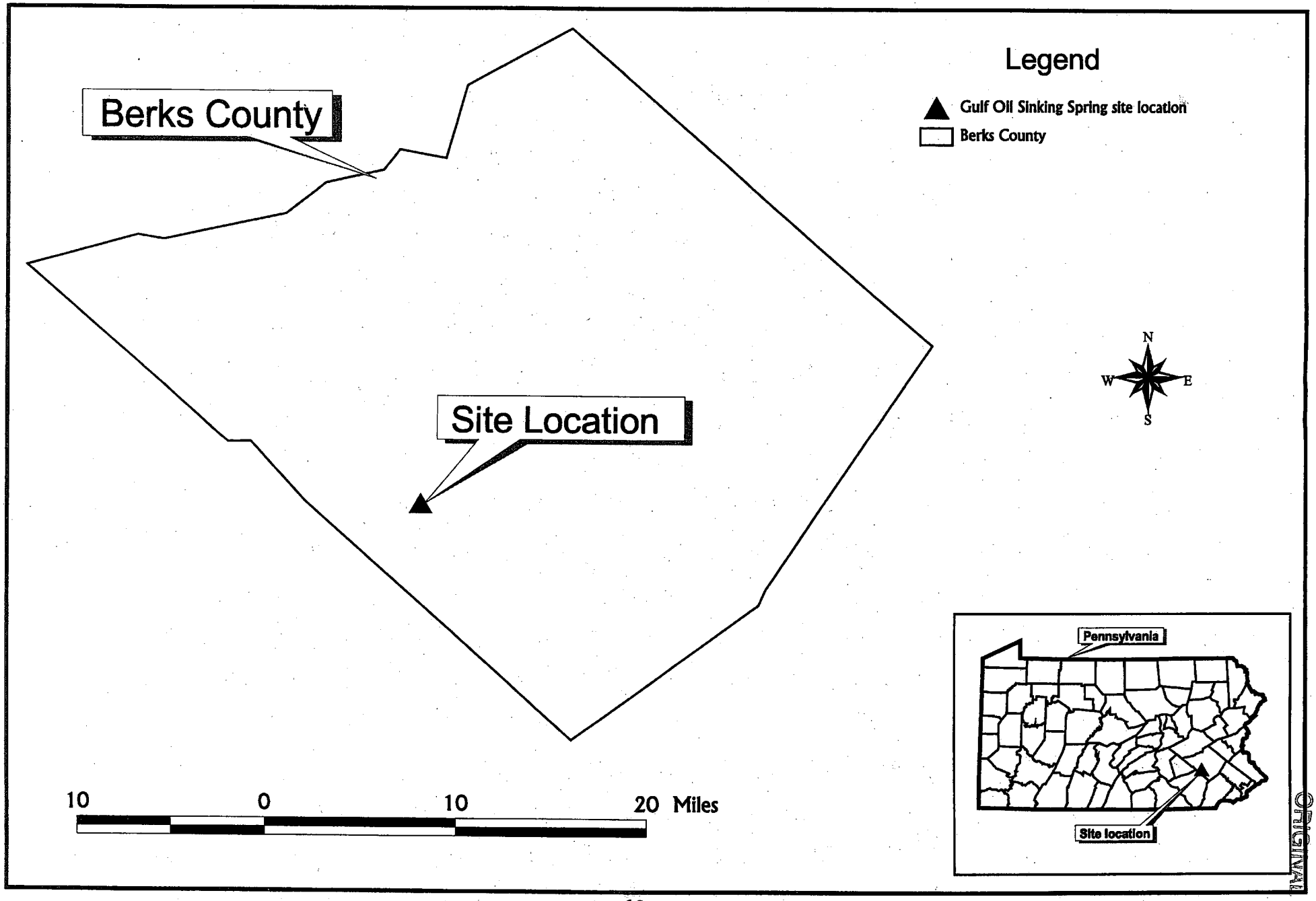

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Figure 2

Gulf Oil Sinking Spring Site Location Map

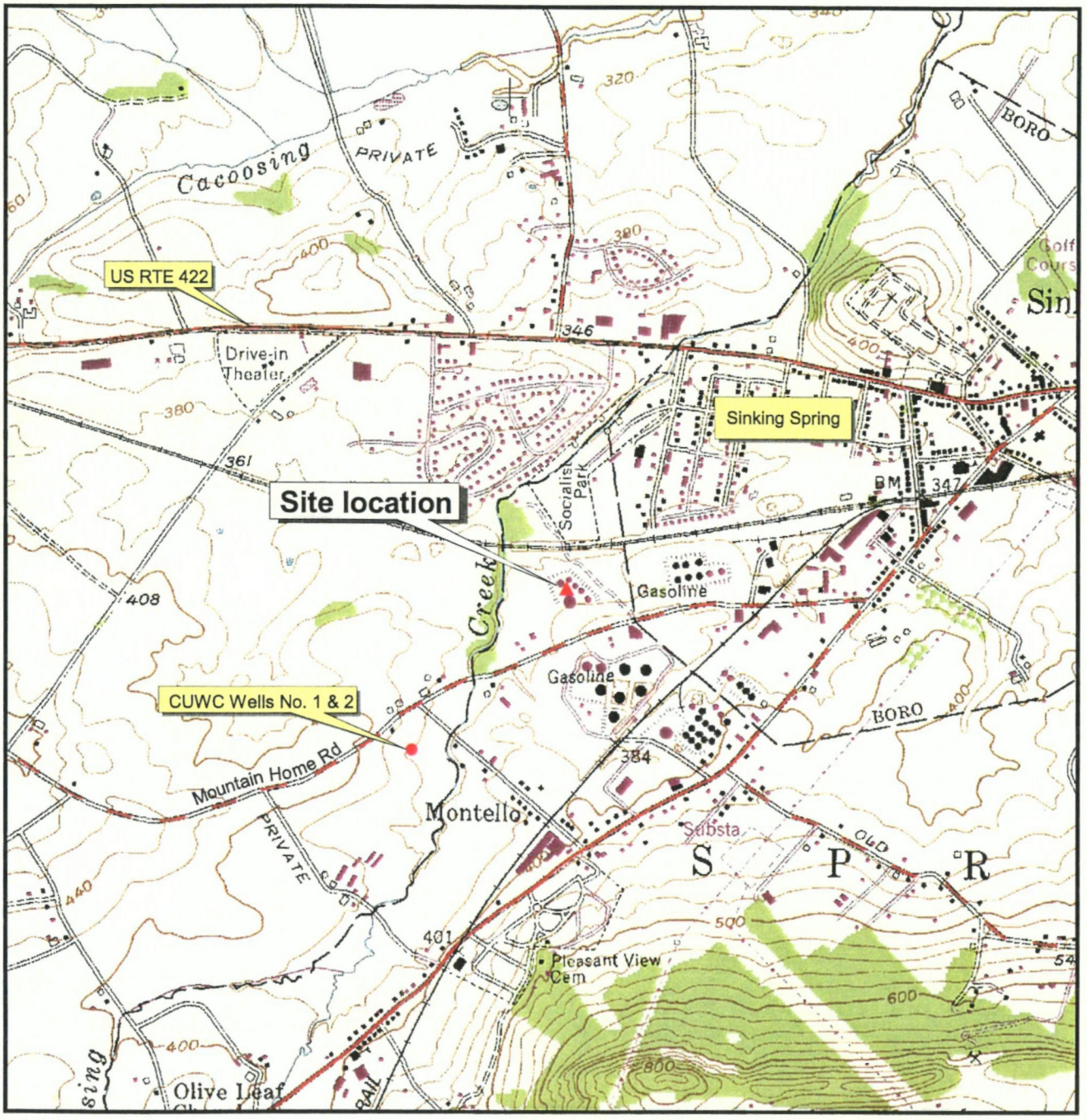

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Figure 3

Gulf Oil Sinking Spring
Site Location Digital Orthophoto

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Figure 3

Gulf Oil Sinking Spring
Site Location Digital Orthophoto

Appendix B

TABLE

Table 1 (3)
Waste Types and Volume

RCRA Code	Description	Pounds Disposed per Year
KO49	Slop oil emulsion solids	3,500
KO51	API separator sludge	700
KO52	Tank bottoms (leaded)	3,500